

Notice of Allowability	Application No.	Applicant(s)	
	10/784,823	IDE, MASAFUMI	
	Examiner	Art Unit	
	VIJAY SHANKAR	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 02-24-2004.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)):
 - * Certified copies not received: _____.

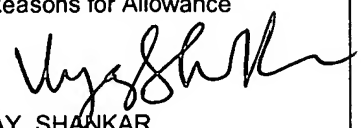
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
|--|--|


 VIJAY SHANKAR
 Primary Examiner
 Art Unit: 2629

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Allowable Subject Matter

2. Claims 1-23 are allowed.
3. The following is an examiner's statement of reasons for allowance: The prior arts Shirasaki, Yin, Liu et al, and Acosta et al fail to teach a method for driving an optical modulator using liquid crystal, the liquid crystal optical modulator comprising: **a first substrate having thereon a composite electrode in which a plurality of parallel stripe conductive electrodes are arranged and said plurality of parallel stripe conductive electrodes are electrically connected by one or more connection stripe electrodes; the liquid crystal optical modulator configured in such a way that the connection stripe electrode has signal electrodes at a predetermined interval to which a control signal is applied; that, by applying a predetermined voltage to the signal electrodes, a linear potential gradient is generated in the connection stripe electrode between the signal electrodes; that a predetermined opposed voltage is applied to the divided opposed electrodes; and that the applied voltages cause a modulation in a refractive index of the liquid crystal molecule layer via a curve modulation area of electro-optical characteristics of homogeneously aligned or homeotropically aligned liquid crystal, wherein there**

are a period in which two drive waveforms, with equal amplitude and equal frequency but 180 degrees out of phase to one another, are applied to the predetermined signal electrodes that receive drive waveforms and a period in which an ac (alternate current) bias is applied to the liquid crystal molecule layer as claimed in Claim 22.

The prior arts Shirasaki, Yin, Liu et al, and Acosta et al fail to teach a method for driving an optical modulator using liquid crystal, the liquid crystal optical modulator comprising: a first substrate having thereon a composite electrode in which a plurality of semicircular conductive electrodes are concentrically arranged and the plurality of concentrically-arranged conductive electrodes are electrically connected by one or more connection conductive electrodes; the liquid crystal optical modulator configured in such a way that the connection stripe electrode has signal electrodes at ends thereof to which a control signal is applied; that, by applying a predetermined voltage to the signal electrodes, a linear potential gradient is generated in the connection stripe electrode between the signal electrodes; that a predetermined opposed voltage is applied to the divided opposed electrodes; and that the applied voltages cause a modulation in a refractive index of the liquid crystal molecule layer via a curve modulation area of electro-optical characteristics of homogeneously aligned or homeotropically aligned liquid crystal, wherein there are a period in which two drive waveforms, with equal amplitude and equal frequency but 180 degrees out of phase to one

another, are applied to the predetermined signal electrodes that receive drive waveforms and a period in which an ac bias is applied to the liquid crystal molecule layer as claimed in Claim 23.

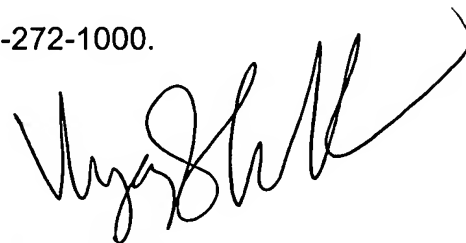
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIJAY SHANKAR whose telephone number is (571) 272-7682. The examiner can normally be reached on M-F 7:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BIPIN SHALWALA can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



VIJAY SHANKAR
Primary Examiner
Art Unit 2629

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